Alan F. Ciamporcero
Executive Director

Federal Regulatory Relations
1275 Pennsylvania Avenue, N.W. Suite 400
Washington, D.C. 20004
(202) 383-6416

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

EX PARTE

William F. Caton
Acting Secretary
Federal Communications Commission
Mail Stop 1170
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Dear Mr. Caton:

Re: *PP Docket No. 93-253, Competitive Bidding*

On behalf of Pacific Bell, please find attached the written ex parte presentation from Paul Milgrom, Stanford University, to Evan Kwerel, Office of Plans and Policy, concerning the above-referenced proceeding. Please associate this material with that proceeding.

I am submitting two copies of this notice in accordance with Section 1.1206(a)(1) of the Commission's Rules.

Please stamp and return the provided copy to confirm your receipt. Please contact me should you have any questions or require additional information concerning this matter.

Sincerely,

Alan F. Ciamporcero

Attachment

cc: Evan Kwerel

No. of Copies rec'd 0+1
List ABCDE

Paul Milgrom
823 Pine Hill Road
Stanford, California 94305
Phone, fax: (415) 424-8631
Email: milgrom@leland.stanford.edu

June 19, 1994

Dr. Evan Kwerel
Federal Communications Commission
1919 M Street, NW
Washington, D.C. 20054

Re: **Activity Rules**

Dear Evan:

Here, for the record, is my final comment on activity rules. The Milgrom-Wilson activity rule is not hard to implement, as the working software that we provided last winter proves. For the sake of those who still don't understand how the rule works or what purposes it serves, here is a brief statement.

Generally, an activity rule serves two objectives in a simultaneous auction design. The first is to ensure that the simultaneous auction is brought to a timely conclusion while allowing adequate time at each round of bidding for bidders to consider their bids. The second is to improve the flow of information to bidders during the course of the auction.

In a simultaneous auction, bidders will often be tempted to delay their serious bidding until late in the auction, when they may hope to have better information about the range of prices at which the various licenses will eventually be sold. Without some activity rule, this temptation to delay bidding could seriously delay the conclusion of the auction, raising costs for all the parties, delaying the allocation of licenses, and possibly provoking an intervention that would damage the efficiency of the allocation. In addition, these bidding delays are self-defeating: without an activity rule, the information conveyed by current bid prices is ambiguous because bidders cannot be sure whether there are still many interested bidders for each license at the current bid prices.

The Milgrom-Wilson activity rule is designed to alleviate both these problems without unduly restricting bidders' flexibility to respond to new information and pursue backup strategies during the course of the auction. Most of the auction will take place in what we have called "phase I" during which bidders are required to remain *active* on a modest fraction – just one-third – of the maximum amount of spectrum for which they wish to remain eligible. Being "active" means either having the highest bid from the previous round or submitting a new bid at the current round. Also, contrary to some of the mistaken statements made by critics, the rule does not require that a bidder be active on the *same* license from period to period. A bidder who bids on the A band in Southern New Jersey in one round may switch to the B band or even to a different geographic area

at another round with no loss of eligibility. The point of the rule is to encourage each bidder to be active on *some* licenses. Bidders that do so remain eligible to bid for *any* licenses up to their elibility limits at the next round. This modest activity requirement combined with a reasonable minimum bid increment ensures that bid prices will rise steadily during phase I until the prices reach a high enough level for some bidders to lose interest, stop bidding, and reduce their eligibility for further bidding.

After prices rise high enough to discourage many bidders, there will be fewer new bids at each round and, eventually, a switch to phase II will be triggered. In view of the activity rule, the low level of activity implies that there can be no more than three active bidders remaining on an average license. The remaining bidders then know that the prevailing prices are high enough to have led all but about three bidders per license to scale back their plans. Without an activity rule, a low level of activity at any given level of prices might mean the same thing or it might mean nothing more than that many bidders were still lying in wait; there is no way to tell. The activity rule makes it possible for the bidders to interpret the price information at the end of phase I clearly and correctly.

The last two phases in the Milgrom-Wilson activity rule are similarly designed to promote maximum information for bidders and to close the auction in an orderly way and without undue delay. During phase II, bidders must bid on ⅔ of the volume of spectrum for which they wish to remain eligible. As the prices continue to rise, additional bidders will lose interest and become less active, reducing their eligibility for continued bidding. When the pace of bidding slows again with few new bids at each round, the auction moves into phase III. At that time, logically, there can be at most 1½ bidders still eligible for the average license. With so few bidders remaining, the auction can be expeditiously brought to a close if bidders will bid actively on as much spectrum as still interests them. The Milgrom-Wilson effectively requires that level of activity by specifying that bidders are not permitted to increase their activity after the first round of phase III. During phase III, bidders must be active at every round on as much spectrum as they wish to acquire. Once the auction reaches phase III, it will close quickly.

The Milgrom-Wilson activity rule is not hard to implement—we have successfully programmed it using Microsoft Excel spreadsheet software. The spreadsheets have been made available for anyone who wishes to inspect them. The Milgrom-Wilson activity rule ensures the orderly completion of the auction and improves the flow of information to the bidders, thereby improving the allocation. While details such as the bid increments and the bidding levels that trigger changing from phase I to phase II or from phase II to phase III could be modified to alter the expected length of time required to conduct the auction, the basic structure of the rule promotes useful goals and should be maintained.

Sincerely yours,